

What is claimed is:

1. A catheter for delivering a longitudinally collapsible prosthesis to an anatomical site in a body channel, the catheter comprising:

a catheter shaft, the catheter shaft having a distal end, a proximal end, and a lumen  
5 between the distal end and the proximal end;

a handle attached to the proximal end of the catheter shaft;

an elongated delivery member located inside the lumen, the elongated delivery member having an engaging element at a distal end of the elongated delivery member, wherein the engaging element is adapted for engaging and disengaging a distal portion of the longitudinally  
10 collapsible prosthesis;

a delivery mechanism at the handle coupled to the elongated delivery member, the delivery mechanism being adapted for pulling the distal portion of the longitudinally collapsible prosthesis out of the catheter shaft during a deployment stage.

2. The catheter according to claim 1, wherein the engaging element comprises a  
15 plurality of releasable sutures.

3. The catheter according to claim 1, wherein the engaging element comprises a plurality of releasably gripping jaws.

4. The catheter according to claim 1, wherein the engaging element comprises a plurality of heat-disengage able wires.

5. The catheter according to claim 1 further comprising a guidewire lumen adapted for inserting a guidewire through said guidewire lumen.

6. The catheter according to claim 1, wherein a therapeutic fluid is introduced into the lumen of the catheter shaft.

5 7. The catheter according to claim 6, wherein the therapeutic fluid is selected from a group consisting of an anti-inflammatory solution, an anti-virus solution, an antibiotic solution, an angiogenic fluid, heparin solution, an anti-angiogenic fluid, a biocompatible adhesive, and a combination thereof.